NORTH PACIFIC OCEAN, DECEMBER, 1932

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Atmospheric pressure.—The conditions of atmospheric pressure fluctuated rapidly from high to low over the northern part of the ocean during December, 1932, but in consequence of the activities of several deep cyclones in these waters, the Aleutian LOW was deeper than normal for the month by more than two-tenths of an inch. At Dutch Harbor the lowest pressure was 28.40 inches, on the 10th, but the American steamship *Tacoma*, some 250 miles to the westward, gave a lower reported reading of 28.17 inches, on the same date.

A belt of high pressure stretched across the ocean in middle latitudes, with crests off the coast of the United States and over the North China and Yellow Seas. The maximum pressure readings of the month occurred, however, on the northeastern Pacific, the highest reported being 30.98 inches, at Juneau, on the 7th. The extreme pressure range in these latitudes for December, taking into consideration the high over southeastern Alaska on the 7th, and the LOW over the central Aleutians on the 10th, was nearly 3 inches.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, December, 1932, at selected stations*

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Point Barrow	29.86	−0.17	30.68	5	29.42	12
Dutch Harbor	20.34	−.22	30.28	30	28.40	10
St. Paul	29.33	−.25	30.30	30	28.56	10, 11
Kodiak	29.54	−.02	30.48	5	28.70	1
Juneau	29.84	+.05	30.98	7	28.52	22
Tatoosh Island	30.04	+.08	30.55	8	28.95	19
San Francisco	30.15	+.03	30.60	25	29.72	13
Mazatlan	29.97	−.03	30.02	19	29.80	23
Honolulu	30.02	+.01	30.14	22	29.81	9
Midway Island	30.01	.00	30.20	28	29.80	8, 9
Guam	29.84	−.03	29.90	8, 12, 13	29.74	4
Manila	29.85	−.07	29.96	8, 19	29.62	5
Naha	30.11	+.03	30.38	9	29.72	6
Chichishima	30.03	+.03	30.22	16, 17	29.66	6
Nemuro	29.95	------	30.46	29	29.10	12

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

Cyclones and gales.—December was the stormiest month of 1932 on the North Pacific. Gales were reported on about 70 per cent of the days, in the main fairly well distributed north of the thirtieth parallel, but occurring on several days south of it. The individual localities with the greatest number of stormy days seem to have been one bounded by latitudes 45°–55° N., longitudes 150°–160° W., and another of somewhat larger extent lying to the eastward of Japan. Here 25 to 30 per cent of the days had gales of forces 8 to 12.

In the extreme western part of the ocean, north of the tropics, most of the disturbances causing gales were of continental origin. Prominent among these was the cyclone of the 11th to 14th, which moved from the Japan Sea to the western part of the Bering Sea, and caused whole gales on the 12th off the southwest coast of Japan, and strong gales on the 13th and 14th over a wide stretch of the ocean east of Japan between the Kuril Islands and the thirtieth parallel. Other severe storms of that neighborhood were those of the 8th, with local gales of force 11 near 47° N., 163° E., and of the 31st, which caused strong gales to hurricane winds between 25° and 40° N., 150° and 160° E. The storm of the 31st was of oceanic origin.

South and southeast of the Aleutians the storminess was a direct result of the fluctuating and frequently intense cyclonic activity peculiar to that region in winter. Of these disturbances, the two most active were of the progressive type. One caused westerly gales of force 11, near the central and eastern Aleutians on the 1st day of the month. The other, moving up from middle latitudes, where it originated about the 8th, entered the Arctic Ocean on the 13th, after crossing the Bering Sea. By the 9th it it had become an intense storm, with central pressures far below 29 inches, and with hurricane velocities blowing on its northeastern quadrant. Gales of lesser force continued on the 10th and 11th along the middle portion of the northern routes.

On the 19th to 22d fresh southerly gales to near-hurricane winds occurred off the Washington and Oregon coasts, with low pressure of 28.95 inches at Tatoosh Island on the 19th, and a south gale of force 11 at the same station on the 22d. The storm area extended seaward for hundreds of miles from the coast. On the 21st an extreme southward extension of the cyclone region caused fresh westerly gales off Cape Conception.

Typhoon.—At the beginning of December a depression appeared south of Guam. By the 4th and 5th, between Yap and the central Philippines, it had acquired the intensity of a whole gale (force 10), with a reported pressure of 29.32 inches. The storm turned northward during the 5th with rapidly increasing energy, and on the afternoon of the 6th was an intense typhoon. The Norwegian motorship *Fernhill*, bound for the Philippines, was at this time in the midst of hurricane winds, with corrected lowest pressure down to 28.11 inches at 6 p. m., in latitude 18° 40′ N., longitude 126° 45′ E., by dead reckoning. The typhoon went rapidly northeastward, lay at some distance south of Japan late on the 7th, and was causing heavy gales up to 11 in force on the 8th near 30° N., 150° E.

Tehuantepecers.—Northers of force 8 blew in the Gulf of Tehuantepec on the 1st, 17th, and 18th, and of force 10, on the 31st, due to strong anticyclones to the northward. On the 31st simultaneous northers occurred in the southwestern Gulf of Mexico, reaching whole gale force in the morning at Vera Cruz.

Fog.—Fog was unusually deficient on the middle American coast this month, and none was reported north of Lower California. Off the peninsula it occurred on the 4th and 5th. In the Gulf of Tehuantepec it was reported on four days, and between latitude 35° and 40° N., longitudes 150° and 170° W., on 4 days. Elsewhere on the North Pacific it was widely scattered or entirely lacking.